The Antique Radio Gazette

OFFICIAL PUBLICATION OF THE ANTIQUE RADIO CLUB OF AMERICA

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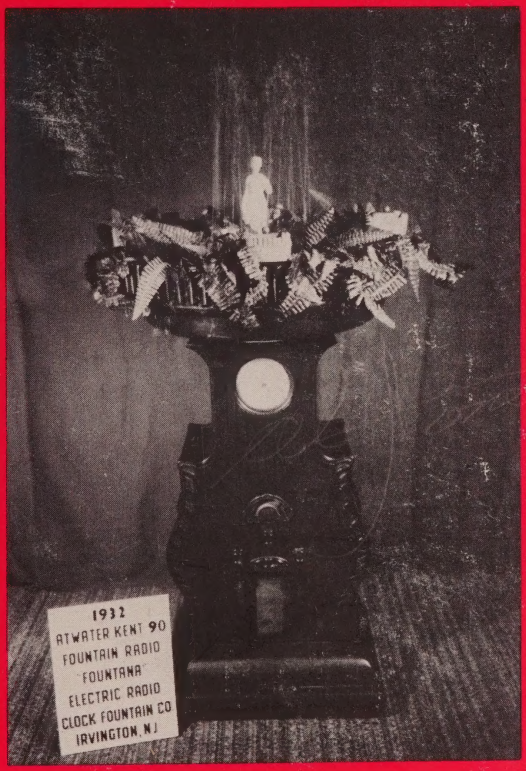

The Atwater Kent shown here is from Dr. Ralph Muchow's fabulous collection, located in Elgin, Illinois. Story is on page 30.

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It is our intention to have the Gazette published as closely as possible to the following dates:

March 31 — June 30
September 30 — December 30

The closing dates for receiving material of all kinds in order to have it appear in the next issue would be:

February 15 — May 15
August 15 — November 15

The Antique Radio Gazette is published quarterly in Madison, Connecticut.

Yearly dues of $12.00 U.S. currency are payable to ARCA January 1, of each year for members in the USA, Canada, and Mexico. Overseas dues are $14, which includes airmail postage.

The Antique Radio Club of America was incorporated in the State of Kentucky, in September, 1972. The first meeting was held at the Marriott Motor Inn, Washington, D.C., on September 23, 1972. At this meeting, by-laws were read and approved and directors selected. We feel that the inceptionof this Club is a giant step in bringing together those indivuduals whose chief interest lies in the area of early radio. We invite all collectors and historians of the subject to join the Club. A note to William E. Denk, Secretary, 81 Steeplechase Road, Devon, Pennsylvania 19333, will bring you an application blank by return mail.

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President's Page

To become president of any organization, large or small, requires that one accept the ultimate responsibility of the achievements or failures of our club's goals.

To all of you I say "thanks" for the great support you have given Jim Troe and myself as your past president and vice president. All of this support, and the special support of a few I will mention, has given me the confidence needed, with the trust you placed in me as your newly elected president. A grand gentleman, Gordon Eklund, was my tutor and great supporter. Our club suffered a great loss some few years ago upon his passing. Another person, who behind the scenes, gave a lot of support to me and our club is Marilyn Johnston. Needless to say, my wife Patsy, is my rock and without her there would be no legible printed words. I would not have accepted your nomination if I were not assured there would be many more, just like these wonderful people, to come to my aid when called upon. You are all very special people and I look forward to helping give direction to a very fine and well established organization.

I became a part of this organization July 1, 1974, when the membership totaled less than two hundred. Today we have achieved National recognition with membership totaling near 1000, representing all fifty states and sixteen foreign countries. I am very proud to be just a small part of this achievement.

I personally do not have a large collection of radios. I have a wide range of collectibles, and perhaps many of you can visit my home next year at Conference '88. Most of my time the last five or six years has been spent helping to organize our W. Va. Chapter and the administration of our national conferences, leaving little time to search those many places necessary to locate rare radios. I have enjoyed very much this aspect of radio collecting and someday when someone else assumes these duties, I will continue my pursuit of the rare ones.

Jim was correct in stating ahead of time that the Washington conference would be a success. For those of you who attended, you know first hand—for those that missed ... well ... you missed. Thanks to the Mid-Atlantic crew for a job well done. The next convention in Charleston, West Virginia is well into the planning stages under the leadership of Geoff Bourne, newly elected president of the W. Va. Chapter.

This being the last issue of the year*, let me take this opportunity to wish all of you a Thanksgiving filled with thankfulness for this great country we live in, and a Christmas Season filled with joy for you and your loved ones.

Patsy and I say from our home to yours, may God Bless.

Lloyd

ARCA
ANTIQUE RADIO CLUB
of AMERICA

Members! Don't forget donations to the J. Albert Moore Memorial Foundation. See page 5.

Our Newest Members

Michael J. Vincent, Midlothian, VA
DeWitt Clay, Lynchburg, VA
Peter Thomasshow, NY, NY
Gilbert Lahullier, Clifton, NJ
Dan Blaney, Beecher, IL
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Kenneth J. Accord, Long Beach, CA
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Larry Cannon, Fresno, CA

Reinstated:

Allen Kuykendall, Boyertown, PA
Joseph A. Szabat, Coraoplis, PA
Charles Brunnelson, Germantown, MD

July 12, 1987.

Dear John,

Nice visiting with you and the "gang" at New Carrollton on June 10. Congratulations on an excellent fifteenth anniversary issue of ARCA Gazette.

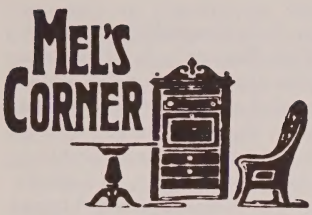
All the articles and features were "super." The restoration "treatise" by Bill Fizette was very thorough.

Seeing the article on Pilot 3" TV restoration by Don Patterson prompts me to remind readers re my article in the April 1974 ARCA Gazette which covers some of the finer points of the restoration of Pilot 3" TVs. To this article, I want to make an addition:

When sound IF or detector coils are defective, repair, rather than replace them. After writing my article, I encountered a set with a detector coil open B+ to plate. Rather than replacing it, I rewound the winding with 36 ga. wire from a relay coil. After aligning the sound detector, the sound was perfect. In subsequent sets, I rewound some sound coils with excellent results. Doing this helps to preserve the original appearance of the chassis.

Again, congratulations and thanks,

Rodney K. Schrock



For those of you who look around the various flea markets from time to time—now and then some outstanding goodies appear—especially if you have sharp eyes!

Such was the case of one of our collectors recently when he spied three little black boxes stashed in the corner of a local flea market. Carefully prying out these boxes from a pile of picture frames, he discovered they were actually radio items! All three black boxes appeared in excellent shape! Matter of fact they all matched up exactly. Tube sockets were empty—but who cares? Old tubes still around.

Looking at the first box—here was a crystal set! But what were these two prongs sticking out the front panel? Must be a tuner? Right!—a place for honey-comb coils! No problem there—these are still around. The inscription on the panel read "*Wireless Equipment Company*." Equipment Company?? We know of Wireless *Specialty* Company—a famous maker of the early days—Navy gear. We know of the "Wireless Improvement Company"—also a very famous maker of those days—but Equipment Company??

He tossed the three black boxes into the car and rushed back home to a pile of old radio magazines. Page after page looking over the ads one by one—nothing. Finally, comes an issue of Radio News, January 1921, and sure enough, here is an ad with the heading ABC. Turns out to be the initials of the president of that company—A.B. Cole—of Wireless Equipment Company!!

Now–elated–out comes a dust cloth—all that is needed to restore the beauty of these fabulous little boxes! Here was the tuner crystal detecter section—first box. The second being a detector with one stage amplifier, the third being a two-stage amplifier— all three with the matching binding posts to tie the three units together for a complete receiver!

After sixty-six years—how in the world did all three of these little boxes stay together intact—without damage—in immaculate condition, and survive? Your guess is as good as mine—but survive they did! Well, those of us who are fortunate enough to visit the big annual Antique Wireless Association Conference in Canandaguia, New York, this fall will have the opportunity to see these three little black boxes reposing in the old equipment contest there—and who knows—maybe a ribbon awarded?

These contests of finding and restoring the old artifacts of radio are becoming popular with various radio clubs around the country, and around the world. The judges of these contests have a hard time in identifying items in the short time available at these meets unless supportive papers are included—such as ads, catalogues, letters and the like. Many a fine piece has been overlooked by the judges for award—simply because no confirming paperwork was available at the time.

When entering equipment be sure it is all there with any accessory items that pertain. Clean, but don't overdo it! Some items appear in a condition never imagined by the original manufacturer!

There are usually a number of categories in which equipment can be displayed—a little time and research usually provides the answer. If it's old—treat it as such and make it easy for the judges. It's lots of fun to come home with a ribbon and proudly display the item in your collection.

Lady luck is a factor in finding a desirable item for these contests. But you never know—it could come out of your back yard or a thousand miles away! Usually it turns up in the most unexpected places. When it hits radio-flea

markets, it's rarely a candidate, due to missing parts which are hard to find—if ever. With the growth of our hobby, more collectors are out there digging into things—the word gets around. All we can say is GOOD LUCK!!!

Cheerio!!

BOOK REVIEW

"FIFTY YEARS OF RADIO"
1888-1938

A 1987 Reprint of the March 1938 "Jubilee Souvenir Number" of Hugo Gernsback's RADIO-CRAFT

This beautiful reproduction, with plasticized covers, by Vestal Press, Ltd., of the March 1938 number of RADIO-CRAFT is a worthwhile addition to the library of any serious collector of early radio apparatus and literature. Not for what was going on in 1938 (that's modern history to most collectors) but for the magazine's treatment of the preceding fifty years.

The reprint's 144 pages includes an editorial by Editor Hugo Gernsback tracing radio's origins to the epoch-making experiments of Professor Heinrich Hertz in 1887-1888, and goes on to the more practical work of Marconi. Gernsback included in this Jubilee issue a number of full-page ads from eariler years: RCA Aeriola Grand (1922), Victrola (1914), NBC (1926), Silver-Marshall (1924), Dubilier (1910), Crosley (1922), Montgomery Ward (1921), and others, along with many less-than-full-page ads.

But of greatest interest are the profusely-illustrated feature-length articles: "The Growth of Broadcasting", "Progress of Radio Receiving Equipment", and "Origin and Growth of Radio Servicing". Then we have a "Chronological History of Radio", with entries running from 1600 (invention of the electroscope by William Gilbert) to 1921. There is an interesting "Reminiscences of Old- Timers"—brief observations written especially for the Jubilee issue by such luminaries as de Forest, Sarnoff, Dr. Frank Conrad, Powell Crosley, Jr., McMurdo Silver, Dubilier, Reinartz, John V. L. Hogan, and others.

"The Story of Amateur Radio" traces its origins to the work of Hugo Gernsback (1909-1910), Edwin Armstrong (1912), and Percy Maxim in 1914. Also not to be overlooked are the sections on "Radio Parts of Yesteryear", "Development of Sound Equipment", "The Old E. I. Co. Days", "Mile Posts in Television", "Fleming's Valve and Up", "Famous Early Radio Circuits", "Some Old-Time Radio Stations", and Gernsback's vision (as of 1938, of course) of "Radio in The Future".

This book is available from the publisher, and also, at $14.95 plus $1.00 postage, from ARCA's West Virginia Chapter. Write ARCA, 4204 Thorn Apple Lane, Charleston, WV 25313.

Reviewed by Bill Denk, W3IGU

NEWS FROM CHARLESTON

The 15th anniversary meet has passed and for those who were fortunate enough to attend, we trust you had a great time. I've heard nothing but good reports about the meet, especially the hospitality and entertainment extended to everyone by the Mid-Atlantic Antique Radio Club. Preparations are well under way for next year's meet to be held here in Charleston. Our Chapter is very excited about hosting this event again and it is our desire to extend a very interesting and enjoyable time to everyone. More about that later.

Our local meets of late have really been enhanced by the willingness of our members to share some pieces of equipment from their collections. One of our members brought a homemade 1930's one-tube transmitter. Another member brought a WWI vintage capacity meter manufactured by the General Radio

Company of Cambridge, Mass. The unit was complete with Murdock #56 headphones and handmade Mica button capacitors. Both sets generated a lot of interest and conversation among our members in what we call the show and explain segment of our meetings.

In the past, Lloyd McIntyre has informed the readers of the Kentucky Highlands Museum located in Ashland. Several of our members have done a great job of putting on the radio history exhibit which allows the visitors to hear the voices of historical figures as they sounded in original radio broadcasts. In March 1988 the museum, in conjunction with the Smithsonian Institute, will present a 'Marconi' exhibition of the events in American and European technology made possible by Marconi's work, including radio, astronomy, satellite communications, lasers, and computer chips. The exhibit consists of thirty-eight panels, photographic and graphic illustrations, and four wall-size photo murals. Our Chapter will assist in the placement of some early Marconi equipment for this special event. This exhibit, which promises to be a very informative one, will run from March 5 through April 3, 1988. It should be well worth the visit.

The J. Albert Moore Memorial Foundation of Charleston

The Charleston, WV Chapter of ARCA has never forgotten the impact made upon this organization by the late J. Albert Moore. Because of the generosity extended to us by his lovely wife Violet, Mr. Moore's influence will be felt for many years to come. Mrs. Moore has donated his library of over 300 books to our chapter! Subsequently the J. Albert Moore Memorial Library was established. Among the many books in the library is a complete set of Ryder's Manuals, Volumes 1 thru 23! The library also contains the most-often-needed radio and television servicing manuals. The radio manuals cover from 1926 thru 1970, while the television manuals cover from 1947 thru 1970. There's not enough space in this column to list all the books contained in the library but it is an invaluable source of info for the ARCA membership. Several of our members have already added to the library by buying sets of reference books and encyclopedias at flea markets and bargain stores. Included are World Book Encyclopedias of 1940, a 10-Volume series entitled "Our Wonder World" of 1926 which is an industrial and technological advancement reference library, the Source Book Encyclopedia of 1929, and The Standard Reference Work of 1925. These four sets of books contain fascinating references on the subjects of radios and wireless.

We could not be more proud of the J. Albert Moore Memorial Library. However, we don't want to stop here. Several of our members have personal libraries in their homes. In the process of building on those libraries, duplicates of several books were acquired. The members have donated the duplicates to the J. Albert Moore Memorial Library. The books are being cataloged and a room in our meeting area has been devoted to the establishment of a reference room that the entire ARCA membership can be proud of. The library will be available to the national membership at the 1988 national meet to be held in Charleston. If you have any books you would like to donate, please send them to the following address:

J. Albert Moore Memorial Library
c/o W. Blaine Smith
721 Lower Donnally Rd.
Charleston, WV 25304

If a book donated is already in the library, the better of the two books will be retained and the other book sold with the proceeds going toward the purchase of more books. This is really an exciting project for our club. We trust that it is a project that the national membership will benefit from also. If you have any questions regarding the library, please write to the address above.

W. Blaine Smith

Old-timer's Notebook

James A. Fred © 1986 J. Fred –

Q. I have an Arvin 6 tube AC-DC radio whose cabinet has an open bottom rather than an open back. The loop antenna plugs into a socket on the back of the chassis, but isn't mechanically held in place. The radio has an aluminum back and the radio plays best when the antenna is a fixed distance from the metal back. After I set the cabinet down over the chassis and screw it to the radio base plate, the sound level falls so low you cannot use the radio.

What is wrong with this radio and what can I do to make it play properly when the chassis is in the cabinet?

A. I recently repaired a radio like the one you described. I too saw that the radio antenna had no visible means of support. The aluminum back affects the inductance of the antenna. The antenna must be in a fixed relation with the aluminum back or you cannot align the RF section of the tuning capacitor. I cut 3/4 inch long sections from a 3/4 inch diameter dowel rod, and drilled a clearance hole lengthwise through the dowel. Use these two wood spacers to hold the antenna exactly 3/4 inch from the aluminum back. Mount the spacers between the back and the antenna with brass or aluminum 6-32 screws. (Do not use steel screws.)

Now align the radio in the normal manner. You can now set the cabinet down over the chassis and the radio will play just as it did without the cabinet.

Dear Old Timer: I recently found a small Simpson Capacity Bridge model 381 at a local Hamfest. It is housed in a molded black plastic case about 4 X 6 inches in size. It has a right side reading meter that has the legend "Adjust to Max.". There are two binding posts and 4 push buttons. There are four calibrated scales with a knob and pointer that selects the maximum meter reading.

My question is: when was this Simpson Capacity Bridge model 381 manufactured and do you have a user-repair manual for it?

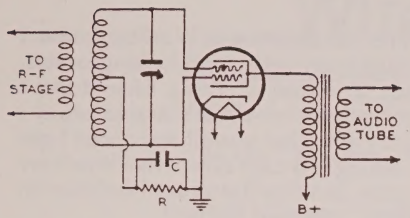
A. You have come up with an instrument I've never had any experience with. I looked through several of my old radio parts catalogs, but could find no advertisement or mention of this instrument. I don't even know what period of time it was made in.

Perhaps one of our readers has such an instrument or has some information he will share with us. If you can help with this problem just drop a line to: Jim Fred, R 1, Box 41, Cutler, IN 46920.

Q. I have some questions about a Wunderlich tube. The ones I've seen have blue glass and red bases. They were apparently used in second detector, AVC circuits. What is a Wunderlich tube, why was it developed, and what radio sets used them?

A. All through radio history there have been many strange tubes developed. Sometimes tubes were designed that attempted to evade previous patents, and sometimes they were designed to capture a portion of the replacement market. Upon examining the literature concerning the Wunderlich tube, it seems as though it had some excellent features. There weren't many manufacturers who made the tube; the only ones I've seen were made by Arcturus, a small company in New Jersey.

According to the book, "Saga of the Vacuum Tube" the Wunderlich tube was made only by the Arcturus Tube Company in 1932.



Circuit arrangement for a meshed duo-grid tube (Wunderlich) operated as a detector.

The Wunderlich tube has a heater, a cathode, two inter-wound grids, (equally spaced from the cathode and the plate) and a single plate. There were tubes with both a 2.5 and a 6.3 volt filament. Referring to the drawing, you can see that the grids connect to both ends of the RF-IF transformer secondary and the center tap of the winding connects to the cathode through a grid leak and capacitor. The primary of the audio transformer is connected between the plate and "B+".

When a signal is tuned in, one grid becomes positive while the other grid becomes negative and vice versa. Therefore the plate current does not vary, so far as the RF-IF signal is concerned, since both grids are at the same potential (voltage) but of opposite polarity so the net change is zero. However each of the grids becomes positive once during each cycle. Each time that happens, the positive grid draws grid current which flows through the leak and capacitor: on the other half cycle the other grid draws grid current which also flows through the leak. In this manner the potential of both grids decreases according to the audio variations of the modulated signal, and the plate current changes accordingly. In other words, the RF-IF plate current changes are zero, but the audio voltage built up across the leak and capacitor is applied to both grids in parallel, since they are in the common leg, and vary the plate current at an audio rate.

There is a distinct advantage of the duo-grid tube (Wunderlich), the plate current varies at an audio rate, thus preventing RF signals from entering the audio system and generating what is known as "fringe howl".

This explains how the tube works, but doesn't answer all your questions. Without looking at all the thousands of schematic drawings in Riders Manuals, I can only remember that Scott used a Wunderlich tube in some model of radio. The one I remember is the Scott Allwave Delux, although there may be others. A Wunderlich tube makes a very desirable collectible.

Q. I have a question that may be beyond the scope of this column, but I need some advice on how to proceed. I recently bought a small 5 tube table model radio called a MIRA Radio made by a company in Chicago. The cabinet was made out of plate glass mirrors. I believe the radio was made in 1933 or 1934.

A. I am glad you asked this question. A friend of mine just restored a radio similar to the one you described. The plate glass front, sides, and top were fastened to wood blocks in the four corners of the cabinet. The front glass plate had two 1/2 inch holes, one for the tuning shaft and the other for the volume control shaft. Several vertical slots allowed the sound from the speaker to come out. In addition, the front had several frosted designs in the glass. The top was made up of several glass mirrors arranged in a pyramid design. The mirrors were quite spotty where the silver had fallen off the glass. Since the EPA has such strict rules concerning chemicals used to resilver mirrors, it is nearly impossible to find a company that resilvers mirrors. My friend took the cabinet to a large local glass company who sent the cabinet out to be resilvered. When the cabinet came back, all it needed was a new piece of grill cloth.

While the cabinet is gone for resilvering, you can restore the radio chassis. First clean off all the dust and dirt from the speaker. Replace the line cord and test the tubes and pilot lamp. Replace any that are bad. If you have a variable

voltage transformer, plug the set into it and slowly increase the voltage to about 50 volts. Watch carefully for smoke, listen for a loud hum from the speaker, and check to be sure the tubes and pilot light bulb are faintly lighted. If all is well, slowly increase the voltage to 115 volts watching and listening all the time. If all is well, maybe you will hear a station. If not, you will have to trouble shoot and repair the radio. We have covered that subject before so will not repeat it here. If you heard a loud hum, you will have to replace the filter capacitors. If you have no variable voltage transformer, you can limit the voltage to the set by putting a 60 watt light bulb in series with the line cord. This will reduce the voltage applied to the radio and allow you to find serious defects before you apply full line voltage to the radio.

After the cabinet comes back and the radio is playing normally, clean and polish the knobs and reassemble the chassis and cabinet.

That is all for this time so keep your questions and letters coming and I will answer more questions next time.

WURLITZER RADIO
by Larry Babcock

I became a Wurlitzer radio collector when I was asked to give a talk on radios built on the Niagara Frontier for the 1985 NFWA/ARCA meet and decided to talk about Wurlitzer radio. The ony reason that I even knew they had made radios was that I had one. It was the only one that I had ever seen. Then after committing myself I had less than a year to become an expert. This I found was not exactly easy to do. Information on Wurlitzer radio was not plentiful.

Wurtlitzer was a respected and well known name but Wurlitzer radio? Not much was known about that. For example last year in Canandaigua I went by every table in the flea market every day for three days and asked each seller if he had anything in Wurlitzer radio. I wasn't particular. I was looking for sets, ads, literature, anything. I found that I had missed one set. It was sold before I got there. That was all there was! I got nothing in 3 days except two Wurlitzer knobs and they didn't say Wurlitzer on them. They said "Lyric"!

But I did learn something at Canandaigua. First of all I learned that there are other Wurlitzer collectors out there and I don't mean juke box or organ collectors, I mean radio collectors! The next thing I learned was that no one wants to sell a Wurlitzer radio. Everyone thinks they have something unusual and wants to hang on to it.

Next I started to advertise in all of the national publications including the ARCA Gazette Horn Speaker, AWA, OTB, Radio Age, Gary Schneider's ARC, and of course our NFWA Chronicle. Then I began to get a few letters but still none from anyone that had a set they wanted to sell. One guy needed a schematic. Another wanted to buy my Wurlitzer Cathedral. Still a third sent me a photo of a set I would love to have but he didn't want to sell. He only had the cabinet and was looking for the chassis. One person had a Wurlitzer that he wanted to trade for a Scott! That is what he thought of Wurlitzer!

After almost a year I had picked up only two sets from all of the advertising. One walked in my front door. The owner would not sell it but was willing to trade for something almost reasonable. Another I bought through the mail sight unseen. The owner wrote saying that the set had 5 401A's in it. I was happy to find that they were Kellog AC type 401 tubes. Another set was a gift from our club president, John Myers. Anyway I now have a total of seven Wurlitzer radios and there is a nice variety of both battery and AC sets. When I have enough information I will probably write an article in one of the national periodicals.

Wurlitzer radios were made here on the Niagara Frontier in North Tona-

WURLITZER

THE RUDOLPH WURLITZER COMPANY

NORTH TONAWANDA DIVISION

SALES, DOLLARS (000 OMITTED)

	1930	1931	1932	1933	1934	1935	1936	1937
JUKE BOXES	$ -	-	-	-	$185	1,050	4,808	10,449
PIANOS	399	288	192	69	101	129	221	171
ORGANS/BAND ORG.	503	524	220	115	33	41	117	106
RADIOS/CABINETS	862	1,663	1,021	526	843	245	256	31
FURNITURE	-	-	33	161	261	109	39	-
REFRIGERATORS	-	-	79	438	535	292	25	-
WASHING MACHINES	-	-	-	-	25	5	-	-
	$1,967	2,596	1,630	1,377	2,071	1,962	5,586	11,636

THE RUDOLPH WURLITZER MANUFACTURING COMPANY,

By _____, its President,

Attest: _____, its ~~Assistant~~ Secretary.

TYPICAL
CORPORATE SIGNATURES

FARNY WURLITZER
REMBERT WURLITZER

EUGENE FARNY
DEWITT KING

ALL-AMERICAN MOHAWK CORPORATION,

By _____, its President,

Attest: _____, its Secretary.

wanda from 1924 through 1937. How local is the Wurlitzer plant? I have been driving by it going to work for the last 35 years!

I am convinced that the reason Wurlitzer was able to go into the juke box business was because of their experience in radio. The early juke box cabinets were wood and not that different from the radio cabinets they had been building. Juke box speakers were very similar to radio speakers, and I guess if you can build a radio chassis you ought to be able to build a juke box amplifier. That only leaves the record changer and they bought that so radio gave them all of the experience they needed to go into the juke box business. Well they lost money on radios but more than made it back on juke boxes so I guess their overall experience was worthwhile.

The Beginning

Rudolph Wurlitzer emigrated to the United States from Saxony in 1853. He started near Cincinnati and noticed that the musical instruments were inferior to those he knew at home. He saved a little money, ordered some violins and got started in the retail music business. This was just prior to the Civil War. Next he got a contract to supply drums and bugles to the Union forces.

In 1880 his younger brother joined him and they made pianos which they sold in the Chicago area. From 1893 to 1903 Wurlitzer was distributor for Regina Music Boxes and then for Victor Talking Machines (phonographs).

The story of Wurlitzer Radio started in 1908 when Rudolph purchased the Dekleist plant in N. Tonawanda. Eugene Dekleist was a family friend and had used this plant for making carnival equipment and organs. The building still bears the Dekleist name today. On the rear side of the plant adjacent to the railroad tracks are the words "Erected 1892, Eug. Dekleist, Enlarged in 1902". All radios made by Wurlitzer were made in the North Tonawanda plant.

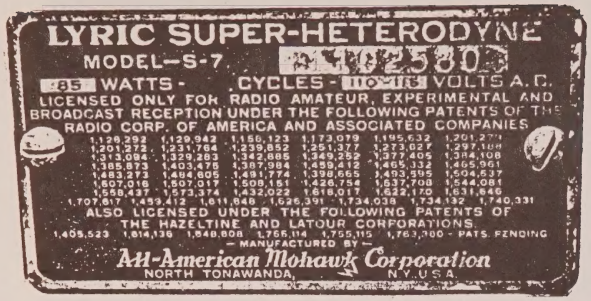
The main entrance to the building still looks the same today as it did fifty years ago when it was used to make radios. The trees are a little bigger and there are a few more broken windows. Wurlitzer has completely moved out of the plant. There is nothing left that is Wurlitzer except the signs on the tower. I know one juke box collector who looks at those signs and drools! He would love to get one of them down and put it up on the roof of his house! He might like it but I bet his neighbors wouldn't!

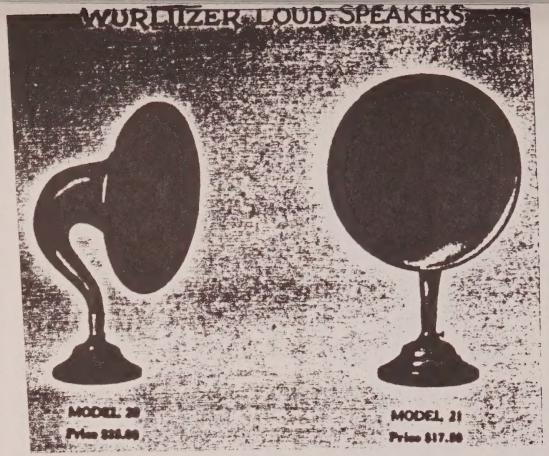
The brick tower is not just there to look nice. It serves a useful function. It hides the water tower. There is a water tower built inside the brick tower right over the main entrance to the plant! People who worked there in the early days tell me that there used to be a morgue on the fourth floor of the tower. Here Wurlitzer had one of each item they built including player pianos, coin operated music machines, etc.

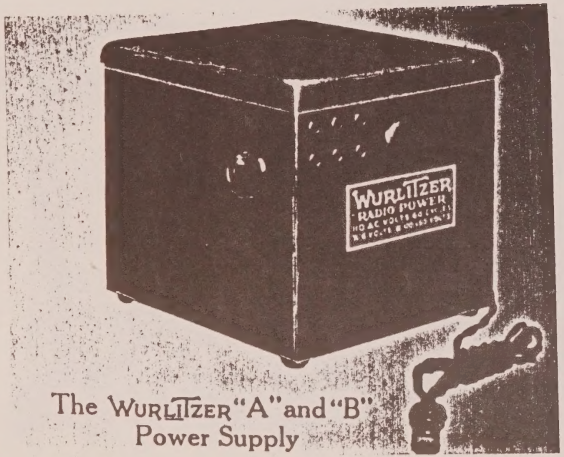
On the boulevard side of the building all of the big trees and the old wrought iron fence have been removed and retail stores put in. I wonder if any of the Wurlitzer collectors got parts of the fence. The building has lots of broken windows and is in a poor state of repair. It is however mostly in use. It has been divided into a number of small retail businesses.

Rudloph Wurlitzer had three sons. They were Rembert, Farney, and Rudolph (Jr.). Farney was in charge of the North Tonawanda plant during the time when they were making radios. By 1910, the plant which was purchased 2 years earlier was making pipe organs to accompany silent movies. Rudolph (Sr.) died in 1919 and left the business to his sons. Things were going well for them. Assets grew from 1 million dollars in 1909 to 6 million in 1921.

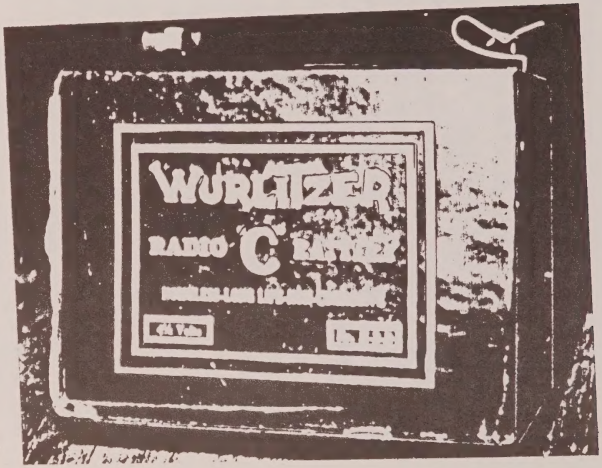
Then the trouble started! First the movies turned to sound and pipe organs were no longer needed in movie theaters. Wurlitzer found they couldn't convert. They didn't have the name for church organs. They were making a high pressure organ. Not what the pur-







The WURLITZER "A" and "B" Power Supply



ists wanted for churches or colleges. The pipe organ business died.

Another problem was caused by prohibition. It caused the sale of coin operated players to drop. On top of that, radio was becoming popular in the home and this was cutting heavily into the demand for home pianos and player pianos. Wurlitzer was being hit in their three main product lines at the same time. Then as if that wasn't enough there was the stock market crash! Wurlitzer stock fell from $119 a share in 1928 to $10 in 1932. The company was now 5 million dollars in debt. They went to making and selling anything they could to stay in business. This included refrigerators, furniture, washing machines and radios.

Wurlitzer Radios

The earliest reference I found to Wurlitzer radio was in our bible, Vintage Radio. It shows a model 5D for $85.00 in 1924. Wurlitzer hoped that radio would take over from the player pianos, pipe organs and mechanical band organs and become the new product line. The model 5D has the name Wurlitzer on the front panel. Most battery sets built by Wurlitzer were identified this way.

The later AC sets usually had the word "Lyric" on the front and may not have "Wurlitzer" anywhere on the set. Not all Lyrics were made by Wurlitzer. Some AC sets still did not use the name Wurlitzer.

I was fortunate to obtain copies of the 1926 Wurlitzer product line catalog from Northern Illinois UN. They show a series of sets which starts with the Model One. I have been unable to find these models in the Rider's Manuals, Vintage-Radio, The Collector's Guide or any other reference on antique radio, but know that they were made because I have seen the Model Seven, and another collector told me he once owned a Tel-O-Air chassis.

Wurlitzer made several different chasses in 1926. One was called the Tel-O-Air. It was advertised as a six tube set with one knob tuning. It had two stages of RF, a detector, and three audio stages with transformer coupling.

The catalog said that Tel-O-Air meant there was separate antenna compensation after the condensers had been tuned. To me that means it really wasn't a one knob set. There was a second knob to tweak after the station was tuned in. This second knob adjustment was advertised as a special feature to hide the fact that it was really not one knob tuning.

The top of the Wurlitzer radio line in 1926 was the Model One. It had the Tel-O-Air chassis and sold for $250.00 complete with tubes. There was a built in horn speaker located behind a grill on the top of the cabinet. The cabinet was quite fancy and came in either walnut or mahogany. All of the floor models had a door that made into a desk when opened to expose the front panel. They also had room for the batteries or eliminators.

The Model Two had the same chassis as the Model One. The cabinet was not quite as fancy and the set sold for $225.00.

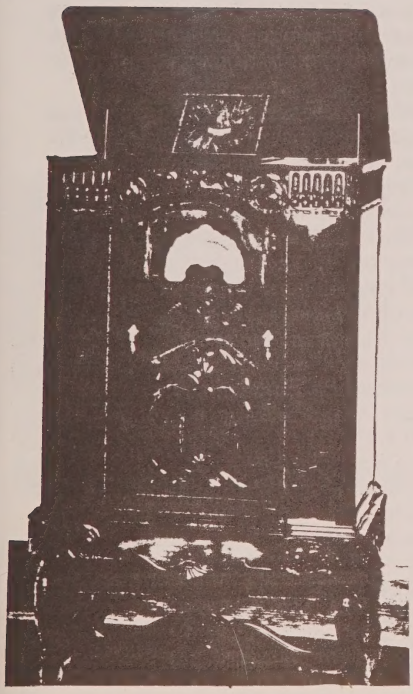
The Model Three also used the Tel-O-Air chassis but had an even plainer cabinet. It sold for $175.00. All of these sets used horn speakers. In the Model Three it was mounted under the cabinet lid and fastened to it so that it was visible with the lid raised. Apparently the intent was to be able to listen with the lid up and not have the sound pass through the grill cloth.

Incidentally, don't get the idea that just because these model numbers started with "one" they were the first sets that Wurlitzer ever made. They were not. They had been making radios for at least two years before they made the Model One.

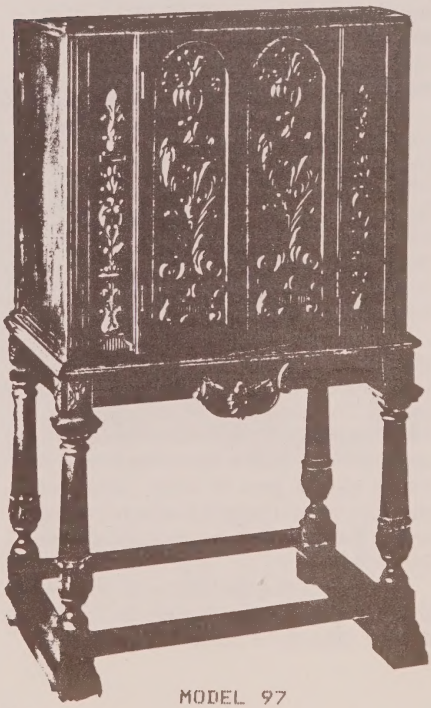
The Model Four was the Tel-O-Air chassis in a table model. It sold for $100.00. The catalog said that the face veneers were matched stump black walnut. Wurlitzer made nice cabinets

ALL-AMERICAN MOHAWK CORPORATION

THE All-American Radio Corporation and The Mohawk Corporation were pioneers in the field when the radio first became universally recognized. In 1927, these two well established firms united to form The All-American Mohawk Corporation. Early in 1929 the Rudolph Wurlitzer Manufacturing Company, organized since 1856, took over the production of Lyric Radios, which insures to this product the benefit of a tradition born over two hundred years ago, in Germany where the Wurlitzers were makers of fine violins.



SELF TUNING WURLITZER
CLOCK CONTROLS NINE PUSH BUTTONS
ANY OF 9 STATIONS MAY BE
CONTROLLED EVERY 15 MINUTES



MODEL 97

with attractive veneers. The Model Four is the best picture of the controls. It shows the on/off, phones, volume, main tuning and Tel-O-Air adjustments.

The Model Five was a different chassis with two knob tuning. Wurlitzer called it duo control. It also had a built in speaker and space for batteries. It was much cheaper selling for $145.00 in the console model. There were 6 tubes including an RF stage and audio stages were transformer coupled. The set was also shielded. This was said to make it much more selective.

The table model version of the duo control set was called Model Five. It was priced at $85.00 and also had the shielded chassis.

Wurlitzer still made a three knob set in 1926. The floor model was available either as the Model Seven or Model Eight. Both had the same appearance from the outside. The difference was that the Model Seven had six tubes and the audio stages were resistance coupled. This required the addition of an extra stage to make up for the gain lost by not having interstage transformers. The Model Seven sold for $79.00.

The Model Eight had transformer coupled audio stages and required one less tube. It sold for $10-less at $69.00. Wurlitzer recommended the Model Seven as having better tone than the Model Eight. Who would buy a set with three tuning knobs in 1926? Probably someone like me who still drives a car with rear wheel drive today!

The set with three knob tuning also came as a table model called the Model Nine with resistance coupling and the Model Ten with transformer coupling. Of course you all know that transformers generally had a turns ratio of 1:3 which gave a gain of three. The extra stage provided the gain needed to make up for the lack of the two audio transformers.

I am sure of course that you also know that the term resistance coupling really means capacitive coupling in that a capacitor was used to carry the signal from plate to grid. The resistors were used to provide voltage to the plate of the earlier stage and the bias voltage to the subsequent stage.

There was also a combination radio phonograph in the Wurlitzer line for 1926. This set was a cute paradox. It was both the most modern and the most obsolete set that they made that year. The most modern because it was the only AC set in the line. "Operates from the house lighting circuit" the ad said. It was the most obsolete because the phonograph was one hundred percent mechanical with not even an electrical motor to drive the turntable. Neither was any use made of the radio's audio amplifier or speaker for the phonograph sound. The complete reproduction system in the phonograph was mechanical! There was a valve control to adjust so that either the sound from the radio or the phonograph could be sent out through the grill on the front. This set sold for $250- complete. It was a three stage TRF set with single knob tuning. Any collector would love to have this set.

Wurlitzer did a lot more than just build radios. They also had a complete line of radio accessories and were selling them in their own line of retail stores which they owned outright!

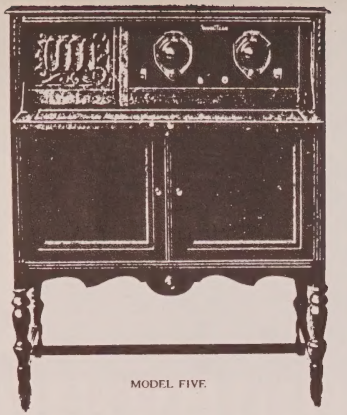
The 1926 Wurlitzer catalog includes a complete line of radio products. They had speakers, A & B eliminators, batteries, trickle chargers, accessory furniture and even more.

In speakers they advertised both the horn and cone types. There were several pages. Some were advertised with the Wurlitzer name and others were made by Utah. I do not yet know whether the Wurlitzer speakers were made by them locally in North Tonawanda. Horn speakers included the Model 20 for $25.00 and the Model 12 for $17.50. Cones ranged in price from $16.50 for a 14 inch dia unit up to $79.50 for a big 36 inch dia floor model with three legs.

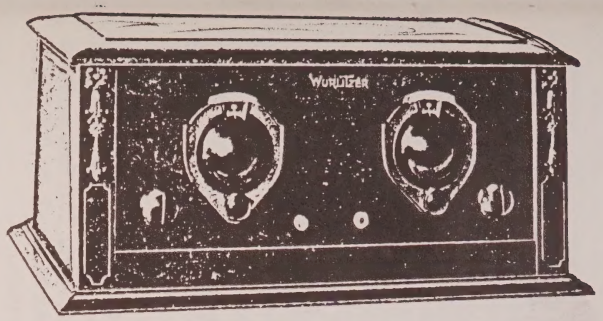
The A and B eliminators had the

WURLITZER
CONSOLE
DUO-CONTROL
SIX TUBES
Transformer Coupled
Built-in Loud Speaker and Unit
Price $145.00
Less Accessories

PRICES SLIGHTLY HIGHER WEST OF THE ROCKY MOUNTAINS



MODEL FIVE

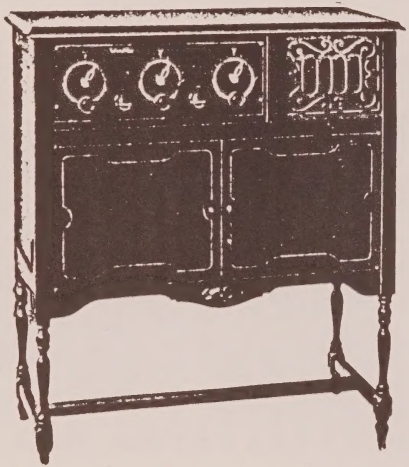


MODEL SIX *(Closed View)*

WURLITZER
DUO-CONTROL TABLE MODEL

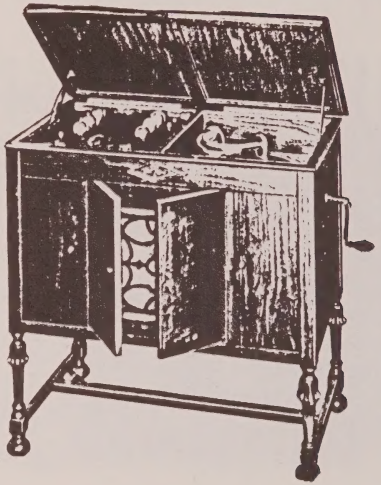
WURLITZER
MODEL SEVEN
CONSOLE
THREE DIAL
CONTROL
Resistance Coupled
SIX TUBES
Price $79.00
Less Accessories

MODEL EIGHT
THREE DIAL
CONTROL
5 TUBES
Transformer Coupled
Price $69.00
Both Models have Built-in Speaker



WURLITZER
COMBINATION
RADIO AND
PHONOGRAPH
Mahogany or Walnut
SIX TUBES
Price complete with all accessories $250.00
Operated from house-lighting circuit

PRICES SLIGHTLY HIGHER WEST OF THE ROCKY MOUNTAINS



Wurlitzer name on the tag right on the unit. The tag does not indicate where the units were made. They were advertising separate A and B supplies as well as combination A and B units. They also had A and B trickle chargers listed in their 1926 catalog under the Wurlitzer name.

The catalog also pictured many types of batteries. I don't suppose that Wurlitzer actually made batteries, but the pictures showed batteries with the Wurlitzer name on the product. They had a complete line including A, B and C types, even No. 6 lantern cells and A and B wet batteries.

There was a radio control switch listed. The ad said that with the switch turned on, the trickle charger would be automatically turned off to eliminate hum. When the switch was turned off, the B supply was turned off and the trickle charger came back on. In this way everything was controlled by one switch. The catalog also listed a Wurlitzer antenna kit!

Wurlitzer was also building radio accessory furniture. One item was a desk. It had a built in horn speaker and room for batteries or eliminators. The radio could be placed on the desk top if desired. As I said, Wurlitzer was not just making radios. They also were making a complete line of radio accessories and they were selling them in their own chain of retail stores. Some of these stores still exist. There is one at the Eastern Hills Mall near Buffalo, NY. The salesman said that Wurlitzer had sold the store several years ago but they were still using the Wurlitzer name.

I've tried to sort out Wurlitzer history chronologically but this is not easy to do. There is no exact time when you can say now they are building Wurlitzer radios. For a rule of thumb, Wurlitzer battery radios generally had the Wurlitzer name on the front panel. AC radios usually had the name "Lyric" on the panel. This is not always true. There are some Lyric sets which were not made by Wurlitzer. There were also some AC sets with "Wurlitzer" on the front panel. I'll try to explain in more detail.

A review of the records from the 1920's and 1930's board meetings of Wurlitzer and all American Mohawk makes dry reading but does produce a lot of helpful information which I am listing in the order in which it happened.

May 1927

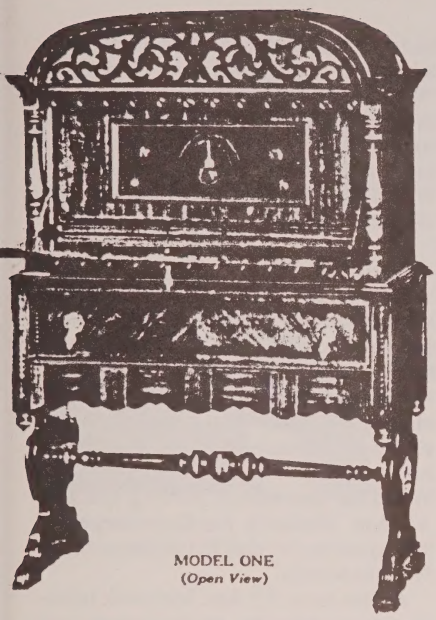
Eagle Radio went bankrupt and was purchased by Wurlitzer. Franklin Kellog resigned as president of Eagle.

March 1928

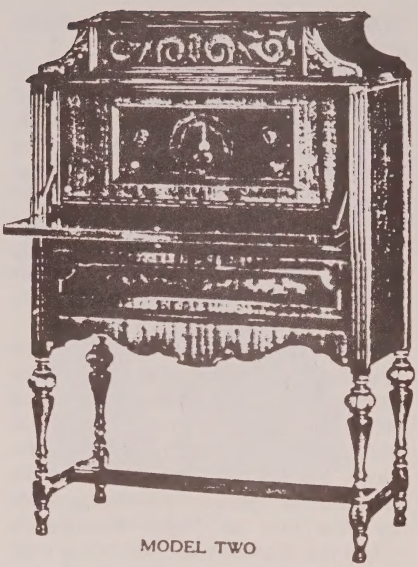
The All American Corp. consolidates with the Mohawk Corp. Both are in Illinois. They made Lyric radios. They were not Wurlitzer.

Wurlitzer had received the Hazeltine Neutrodyne license when they purchased Eagle Radio. This they leased to All American Mohawk for the sum of $30,000 per year.

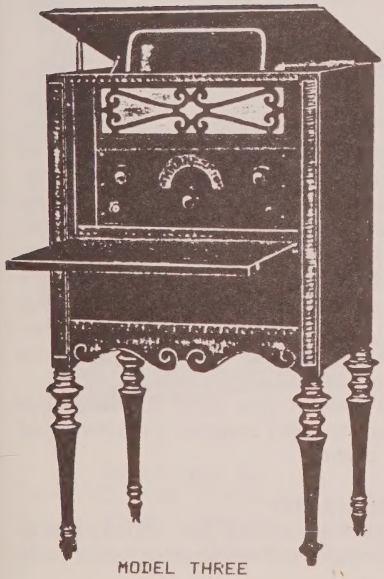
An interesting side note in the All American Mohawk board meeting notes is that the company was approached to acquire the Federal Radio Corp. of Buffalo, NY. This was discussed in the meeting and it was decided that "Yes, All American Mohawk would like to buy Federal." 12,000 shares of stock were offered for the radio assets of Federal. (Receivers and transmitters, not telephone and telegraph). This offer was subject to approval by the Federal directors and stock holders. Apparently it was never approved. I never heard that All American Mohawk owned Federal at any time. I think of Farney as an unusual name but there were two of them at this All American Mohawk meeting. Eugene Farney was pres. of All American Mohawk and Farney Wurlitzer was also on the All Am M board. At this meeting it was decided that Wurlitzer would order 260,000 lbs of wire (130 tons) to make speakers for All Am. Mohawk. They were to sell the first



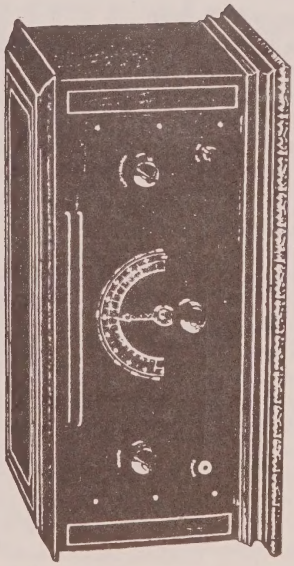
MODEL ONE
(Open View)



MODEL TWO



MODEL THREE



MODEL FOUR

WURLITZER 1926

15,000 at $5.50 each and the remainder at $4.90 each.

Also at this meeting it was decided that Wurlitzer would start building all radio cabinets for All Am. Mohawk. They would do this in a new building to be built at the plant in North Tonawanda. They would call this the "Lyric" Division. Wurlitzer was to purchase lumber and perform kilning, cutting, milling, glueing, and finishing in this plant. Cabinets were sold to All Am. Mohawk at $13 to $20 each.

It is interesting to note that at this time Wurlitzer was purchasing Lyric radios through the All Am. Mohawk jobbers to sell in the Wurlitzer stores. They could only get sets through the All Am. Mohawk dealers or jobbers because the cabinets and speakers were being made by Wurlitzer in North Tonawanda while the chasses were still being built by All Am. Mohawk in Illinois. Dealers and jobbers were assembling the sets. Not too efficient, but that is how it was being done. Wurlitzer owned their own chain of 35 retail stores and wanted to sell their radios in them.

November 1929

At this time Wurlitzer still did not own All Am. Mohawk, but the affiliation had become extremely strong. Rudolph Wurlitzer (Jr.) was now chairman of the board of All Am. Mohawk! His brother Rembert Wurlitzer was also on the board. Eugene Farney, president of All Am. Mohawk presented a plan to move the Chicago plant of All Am. Mohawk to North Tonawanda. He reasoned that this was a good idea because Wurlitzer was already making the cabinets and speakers in N. Tonawanda, labor was cheaper, and so was electrical power because of Niagara Falls. Since business was slow at the moment, he recommended finishing up production with the parts on hand in Illinois and then moving to N. Tonawanda. This was done in 1930. After that date all Lyric radios were made by Wurlitzer in the North Tonawanda plant. Many still had the All American Mohawk name with Lyric on the front panel. The name "Wurlitzer" may not even appear on the set or may be on the cabinet only. Anything carrying the Lyric name and built after 1930 may be considered Wurlitzer since it was fully made in the Wurlitzer plant.

April 1931

At this time the contract between Wurlitzer and All Am. Mohawk was further modified to give Wurlitzer even further control. It was agreed that they would now build complete sets. It was also agreed that Wurlitzer would design and develop all new models for each new model year. At this time Wurlitzer also started renting space to All Am. Mohawk for their corporate headquarters in the Wurlitzer plant in N. Tonawanda.

At this time All Am. Mohawk transferred all patents, trade names and trade marks to Wurlitzer. This probably included the name "Lyric". Finally then, Wurlitzer agreed to help sell the Mohawk line of refrigerators, and it was noted that All Am. Mohawk owed Wurlitzer $261,000.

January 1933

Since both companies has been continuing to lose money the last two years, the contract was now modified again. Wurlitzer was made fully in charge of the radio line. This included marketing. Wurlitzer was now responsible for sales. They also agreed to give All Am. Mohawk office space rent free. (All Am. Mohawk was no longer able to pay for space.) Wurlitzer also agreed to pay All Am. Mohawk a 1% commission. They needed this to help pay off the debt to Wurlitzer.

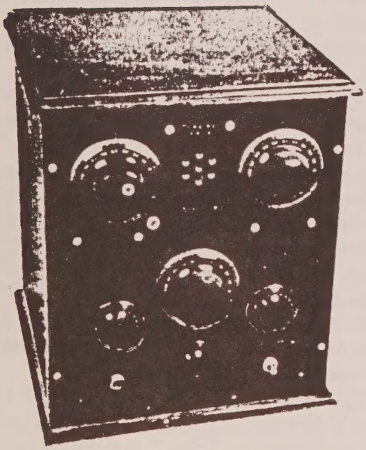
It was at this time that Rudolph Wurlitzer (Jr.) resigned as director of the board.

March 1933

At this time All Am. Mohawk sold their radio and refrigerator repair parts

RUDOLPH
WURLITZER

FARNEY
WURLITZER



WURLITZER 5D
5 TUBE T.R.F.
1924 $85.00

1926 CATALOG
COVER

to Wurlitzer. The money from the sale was used to pay off more of their debt to Wurlitzer. After this sale Wurlitzer was responsible for all of the repairs to radios and refrigerators.

July 1934

Wurlitzer was still losing money on radios and considered reducing production and getting rid of parts on hand. It was felt that this could cut the losses from $270,000 lost last year to $80,000 for 1935. This was the same amount as to shut the plant down and leave it standing idle.

November 1934

All American Mohawk declares bankruptcy in western New York.

1937

The last Wurlitzer radio was built in 1937.

Sales Figures

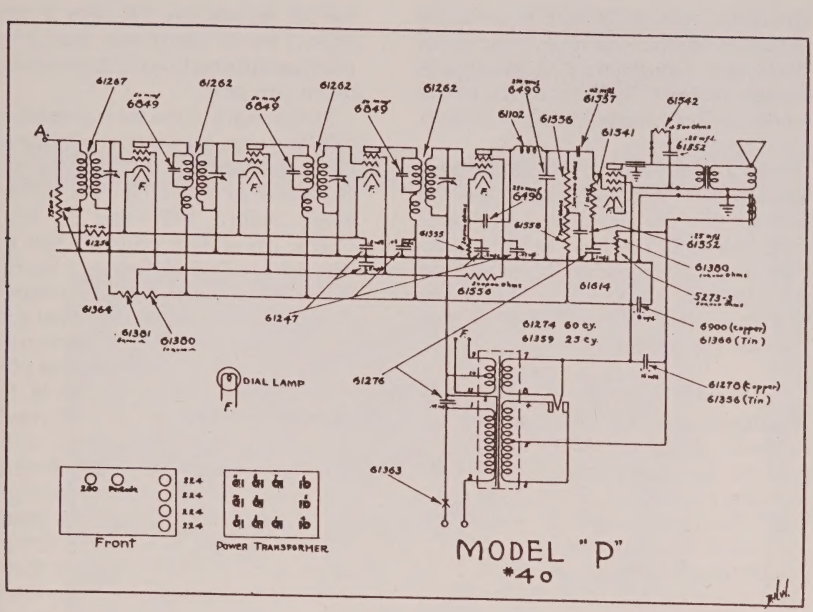
The chart of sales for the N. Tonawanda plant for 1930 to 1937 shows that radio was not just a sideline with Wurlizter. In fact for the years 1931 and 1932 the chart shows that more than half of the sales from the North Tonawanda plant were in radio! It also shows that for the five-year period from 1930 to 1934 more than one third of the total sales was radio! The chart also shows the involvement of Wurlitzer in the manufacturing and/or sales of other surprising products such as furniture, refrigerators and even washing machines! It is also seen that the first year of sales for juke boxes was 1934 and that this business expanded rapidly. There was about a 6 to 1 growth factor in juke boxes in one year from 1934 to 1935. This increased by another factor of four the next year and another factor of 2 from 1936-1937! The chart shows the sales of radio declining each year as the juke box business increased. By 1937 the juke box business was much bigger than radio had ever been. Obviously the company no longer needed to continue in radio where they were losing money since things were then going so well in juke boxes. The chart shows how the business transferred from radio to juke boxes. It is not shown but is very obvious that experience with radio allowed Wurlitzer to get in to the juke box field. They had been making fancy console radio cabinets, very similar to the early wood juke box cabinets. They were also making radio speakers which were very much like juke box speakers. Juke box amplifiers could be made on the same line as they had made radio chasses. The only other thing was the juke box record changer. They didn't have experience with it so they bought it from Homer Caphart when he conveniently came along.

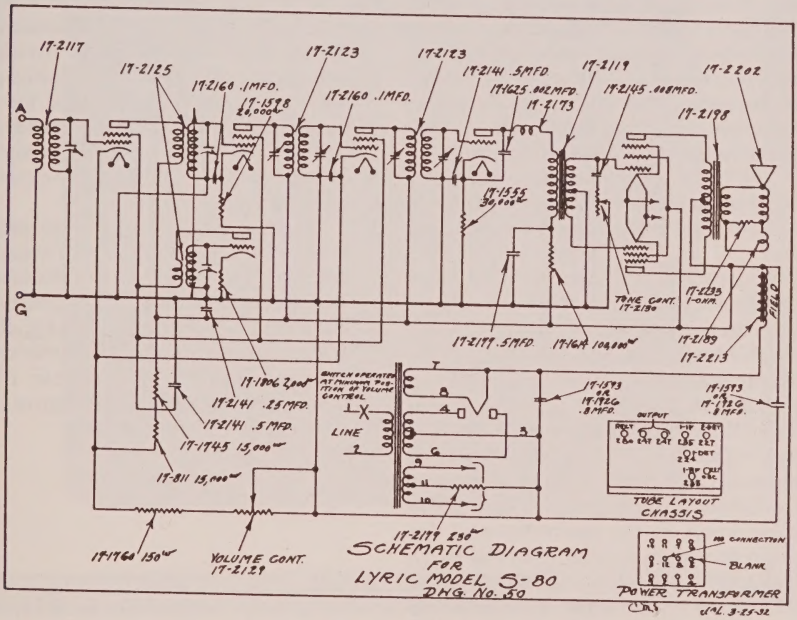
My Collection

My collection of Wurlitzer radios presently consists of five AC and two battery sets. One of the battery sets is the Model "Special". It is a 1925 three knob TRF set using five 201A tubes. Three knob TRF sets are considered to be common by most collectors but try to find one by Wurlitzer! This radio has the Wurlitzer name on the front panel. It is about two years earlier than the Model One.

My other battery set is listed in Rider's Manual I under All American Mohawk as the Mohawk Navajo Va. The only difference is that my set has Kellog 401A's instead of the 201A's specified in Rider's. At first I thought that the set had been modified to the AC tubes but it looks factory to me. They must have made it both ways in 1926. This radio has the Wurlitzer name stamped in the metal on the front panel between the two control knobs.

My cathedral is a good example of a typical Wurlitzer AC set. The name on the front panel is "Lyric", not Wurlitzer. On the chassis is the Model S-7, and the name, "All American Mohawk". On the bottom of the chassis is the address, North Tonawanda NY. That is the clue that it was made by Wurlitzer in the N.





All-American Mohawk Corporation

NORTH TONAWANDA, N. Y.

Tonawanda plant. On the top rear of the cabinet is another tag with "Product of Wurlitzer". This means Wurlitzer made the cabinet in N. Tonawanda too so the whole set was made by them in their plant (in 1930).

My grandfather clock radio was made in 1930 also. It is the Model S-6 and is taller than most radios of this style (about 70"). It has "Lyric" on the front and "All American Mohawk" on the chassis. There is "Product of Wurlitzer" on the top of the cabinet. This set came from the Boston, Mass. area.

My Model D floor model was my first Wurlitzer radio. It is a 1929 AC set. It is unusual in that it has no electrolytic caps in the power supply. The filter capacitors are paper. The largest is 1.5 UFD. This set has a nice cabinet and has been used several times in our NFWA exhibit of radios in the bank lobby of the Main Place Mall. The D chassis has 6 tubes, 2 RF stages, detector, audio amp and push pull 45's in the output. Wurlitzer made a number of chassis with lettered model names. The D chassis was used in all sets with "D" in the model name. You would use the same schematic for Model D-1 or a D-10. The "D" schematic. There was also an "H", "J", "K", "P", and "S" model set. This information may help you when you are looking for the schematic for your set.

Now for the most unusual set I have obtained so far. It is a combination set. You think that means radio/phonograph do you? Wrong!!! This is a combination radio and piano! No one at the 1985 ARCA meet had ever seen one. It is one of their last sets and since they were making both pianos and radios I guess it is a natural that they would make one combination radio/piano. There is the name Lyric on the radio dial and the name Wurlitzer molded into the harp. A gear driven shaft connects the tuning knob to the 4 gang condenser. The piano is a scaled down model of an upright. There is a 5 octave keyboard. It needs lots of restoration. I'll save it until I retire. I would like to hear from anyone who has information on this radio or the piano part of it.

In summary, if the set was made after 1930 and says All American Mohawk or Lyric, it was made by Wurlitzer in the N. Tonawanda plant. If it is a battery set made before 1929 and is labeled "Lyric", Wurlitzer probably had nothing to do with it. If there is a Wurlitzer label on the cabinet, that may mean only the cabinet was Wurlitzer. Finally if the chassis label has North Tonawanda on it, it was made in the Wurlitzer plant.

Wurlitzer is now gone from N. Tonawanda but the monument still remains. It is the factory tower with a large Wurlitzer sign on each of the four sides up high in the air. It is interesting that the same thing that caused them to move to N. Tonawanda in the first place appears to be what caused them to move back to Illinois. Probably the high NY state taxes didn't help much either.

When this talk was presented at the ARCA/NFWA meet last summer I asked how many there owned a Wurlitzer radio. Only three raised their hands. Lauren Peckham said his son, David, had one. When I asked how many had three or more, only Dr. Muchow had his hand up. They are not plentiful.

The purpose of this paper is to tell you about Wurlitzer radio but not to encourage you to collect them. However I would be glad to supply information to our members if I can. I would also like to add to my collection of Wurlitzer radios if you know of any available. Please write Larry Babcock, 8095 Centre Lane, East Amherst, NY, 14051.

WERNITZER

All ads and Swap Shop items are printed in the Gazette free of charge. We do ask that you write your ad on a separate sheet of paper, type if possible, and be sure to include your name and address. We reserve the right to edit all ads. ARCA is not responsible for any transactions, of course.

SALE/TRADE: misc. QSTs from 1922 up. Philco 20b cathedral, excellent condition, $135.00 Echophone S-3 cathedral $85.00. Zenith transoceanic 1000 (first transistor).
WANTED: Pre 1938 Pilots. Pre 1960 German and foreign sets. Philco 71 chassis/console. Bill Moore, 1005 Fieldstone Ct., HSV AL 35803. (205) 880-1207.

WANTED: Federal #24 rheostat. Don Sturzenbacher, 221 S. Montana, Mitchell, SD 57301.

WANTED: Tube sockets for NV-VISTOR tubes and 12-pin COMPAC-TRON tubes. Fenton M. Wood, Wireless KB5VQ, PO Box 2063, Malakoff, TX 75148.

WANTED: McIntosh AE-2 preamp; 15WI, 50WI amplifiers. Also other early tube HiFi equipment, magazines, etc. Jack Smith, 288 Winter St., N. Andover, MA 01845. (617) 686-7250.

FOR SALE: Over 75 working radios, Glorytone, Cathedrals, Crosley Tombstones, interesting Deco plastics, woods. SASE for list. Ripley, 2276 Holloway, Maplewood, MN 55109.

WANTED: Plug in coils for National SW3 and manual. Operational manual for Heathkit Model 18-2A Impedance bridge. Tod Drogoski, 50 Land Valley Rd., Boro of Jefferson, PA 15025.

WANTED: G.E. R80 Tombstone, Philco 90 Cathedral; others in 1930–37 range. David Berardi, 112 Old Stone Bridge Rd., Cos Cob, CT 06807.

FOR SALE: 9 issues Radio Craft (1938–1941) $20.00; UV-203A in orig. box $35.00; RCA Slimline Mike $35.00; 7 Early Phone Plugs and 12 jacks $15.00; Radiola III (no tubes) $60.00; 18 issues Radio News 1930–1935 $35.00; 1922 Mesco Catalogue $25.00. F.W. Chapman, Apt. B 218, 1130 N. Lake Parker Ave., Lakeland, FL 33805.

WANTED: Still buying early TVs, TV-novelties, etc. Have over 315 sets for sale or trade. Paying $25-$500 for pre-1950 sets, 30" B&W, 15/16" color, and odd-ball TVs. $1000-6000 for pre 1943 televisions! Please call Harry Poster, (201) 794-9606, Box 1883, So Hack, NJ 07606.

WANTED: Dial scale for Philco model 60 cathedral Pt. Nos 31-1090, 31-1472A, cabinet for Silvertone model 1954X tombstone plus knobs, 1 round foot for Radiola 60. Also want nice A.K. (any type). Philco 60 or Philco 20 cathedrals or model 1708 Silvertone. Kenneth Lowther, HHD 558th USAAG, APO NY, NY 09253.

FOR SALE: Are you looking for those early books, magazines, catalogues, QST-Modern Electrics, etc? A large collection just received. See me at Canandaigua. I may have just what you are looking for. Jim Kreuser, 6270 Clinton St., Elma, NY 14059.

WANTED: Am doing research on Hallicrafter receivers and transmitters and factory background. Interested in buying a number of the early uncommon items of Hallicrafters type S-1, S-2, S-3-Super Skyrider 4-5-6S or SX. Ultra S-10 Echophone EC-Z or EC-3 SX-16-Sky Challanger S-18 Diversity DD-1-S-30-S-35-SX88 SX-100 or 96-HT-3-HT-4. Also catalogues paper items. Max De Henseler, 333 East 43rd St., Apr 9A, New York, NY 10017.

FOR SALE: Club emblems, tie clasps, in your favorite designs of prominent organizations—now available. Send SASE for illustrated catalog showing standard items in stock. Michael Sabodish Sr., 11-A Matawan Ave., Cliffwood NJ 07721.

SALE: Rare Atwater Kent breadboard of the very early days—prior to AK's production of these early sets. Write for details with SASE. Set in working order. Unusual F.A. Nichols, 720 E. Eldorado, Appleton, Wisconsin 54911.

SALE: Have a number of old radio items parts—sets on hand—list available. Am looking for Amrad items. Andrew Mooradian, 5 Priscilla Lane, Winchester, MA 01890.

WANTED: Philco model 52 chassis. FOR SALE: few radio parts, tubes, and sets, Edward Houck, Rt. 4 Box 205, Boone, NC 28607 (704) 264-8057.

SALE: New items coming in regularly. Tubes, books, parts—you name it! Are you on our list for the current catalogues being issued? Write us. Antique Electronic Supply, 688 W. First St., Tempe, AZ 85281.

SALE: A local TV store going belly-up results in my having several thousand new boxed tubes on hand! Send SASE for your needs—all or even one! I need the space so real bargain if you take everything. Bob Storm, 348 Hunter St., W. Palm Beach, FL 33401 (305) 582-2806.

SALE: Looking for Atwater Kent Items? So am I. I buy, sell, swap and restore these goodies. All size boards available. Finished or unfinished. Custom wood work our specialty. Send SASE for list and wants. Lawrence Di Barry, 212 N. 6th St., Chambersburg, PA 17201 (717) 263-3803.

FOR SALE: Bristol Audiophone & Magnavox R3C horns, plus others; Murdock No. 366 tuning condenser, in original box, no black case; Edison Standard 2 min. cylinder machine; 1932–34 AK model 776 auto radio p. 62 F.O.S. with head and cables—offers. Send SASE for 87-2 list. WANTED: DeForest catalogs A & C, DeForest RJ-4 receiver, Signal Corps P1-A headset. George Potter, 2069 Sienna Trail, Lewisville, TX 75067 (214) 393-0020.

WANTED: 1st I.F. transformer-Philco 70, cabinet Philco 90, cabinet Kadette jr.—F.O.S. page 101, cabinet Airline 62-606—Telephone radio F.O.S. page 62. Buy or trade over 300 items, Thomas Romano, 31 Granby Rd., Worcester, MA 01600.

FOR SALE: Very large collection of books, magazines, some tubes and radios. Radio Craft, Radio News, Shortwave Craft, QST 1919 and up in binders, Pop Electric 1906–1913, Radio World, The Experimenter, Science and Invention, just to mention a few. Most in very good condition. Send SASE with your interests. I just might have what you are looking for!. Thomas J. Maciolek, 41 Green Point Cir., Chicopee, MA 01020 (413) 532-9773.

WANTED: Colorful plastic radios from the 1950s. (Table-top and transistors). Also deco designed bakelites 1930s–1940s. Peter Thomashow, 350 West 20th St., Apt. 4F, New York, NY 10011 (212) 989-0213.

Just what you need to repair that vintage electrostatic TV, new, .005 mfd, 5.7 tubular capacitors (like the originals), $2 each including shipping. Wanted, UV 204 tube, Bill Hurni, W3HWT, 329 Evergreen Dr., North Wales, PA 19454.

ATWATER KENT LOUD SPEAKERS

by Ralph Williams

(continued from previous issue)

While the Model E-3 provided very acceptable reproduction for those ears trained on earlier radio sets and phonographs, the age of dynamic sound was dawning. The concept implemented by Magnavox with the voice coil separated from the air-mover had been recognized for its potential use by the rest of the industry. Electric sets using plug-in power removed one serious limitation on audio output levels, the excessive cost of batteries if more than a few milliwatts were to be delivered to the loud speaker. Tubes, transformers and circuits were available in 1927 to provide watts of output power. Receivers whose cost and appearance were all but identical to the sets that used magnetic speakers such as the Model E-3 could be manufactured and sold economically.

The need was for a different, much higher power-rated reproducer. The voice coil operating in an annular air-gap magnetized by an electromagnet offered nearly unlimited growth toward sound levels well above the ability of human ears to survive without damage. (The highest power output from a voice coil system with which the author has had experience was a mechanical shaker for vibration testing. It operated at average power levels well over ten kilowatts with power peaks as high as fifty kilowatts.) To meet the need for a higher-power reproducer, Atwater Kent's designers brought out the Model F electro-dynamic loudspeaker. It was to be used with receiver Model 43.

In the general design of electro-dynamic loud speakers, the voice coil operated with a relatively high current and very low signal voltage compared to the plate circuit of the output stage. A transformer was traditionally used to change the plate impedance, in the order of a few thousand ohms, to the

voice coil impedance of a few ohms. For the Model F series the transformers were included in the power-supply containers of the associated receivers. The ampere-turns of magnetizing force for the air-gap field was produced by a large field coil usually connected in the filter section of the main power supply for the receiver.

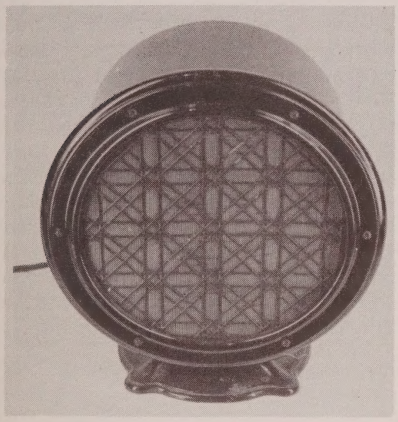


Figure 6

Type F speakers were used from Model 43 through the Model 60 series. Figure 6 shows a Model F4. There were nine different loud speakers in the Model F series. Their field coils varied from about 700 ohms for Model F6C to 2500 ohms in Model F used with Model 43. The Model F7, used with the D.C. receiver, Model 67, had a field coil resistance of 8 ohms. The D.C. resistance of the voice coils for all Model F style speakers approximates two ohms.

The radios in the next series of receivers were characterized by their high-power, high-quality (for their time) audio output. They were the 70 series and for them a new loud speaker model was designated. These high power units were the Model N loud speakers, figure 7. The distinguishing characteristic for comparison to the other high power units, was the output transformer fastened to the side of the field coil enclosure. The plate leads of the push-pull output tubes, (Type 45s)

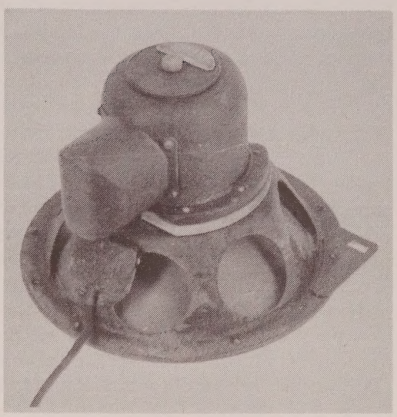


Figure 7

were brought out through the speaker plug to the transformer on the speaker. The advantage of doing this was in saving space on and under the chassis of the receiver.

The next illustration, figure 8, shows

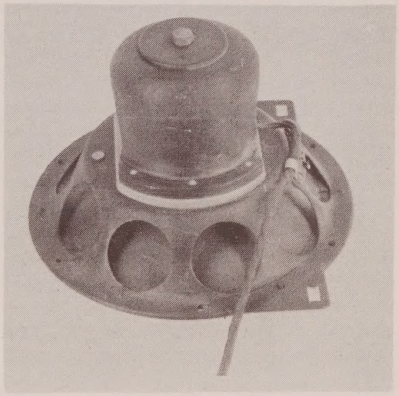


Figure 8

the last (and perhaps the best) of the original no-holds-barred design. Speakers in this series may be identified by a brass plug on the rear apron adjacent to the field structure. Number 324 was used on Models 612 and 812 and number 711 was used on Models 511 and 112. These were the top of the line Atwater Kent consoles in the early thirties, and used the best loud speakers

that he could design and produce. All of these speakers were considered to be 12 inchers although the outer dimension of the moving part of the cone, (the surround) is an inch less. They had fairly stiff cones by today's standards with resonant frequencies not far from 50 Hertz. They do not make good substitutes for today's woofers because of the resonance and with the stiff cones never provided much high frequency response above 10 kilohertz. They did, however, produce the nostalgic sound that program collectors attribute to the good old thirties, (boomy boxes at about 200 Hertz) and much reduced output above 5 kilohertz.

Because the radio fans of the 1930s were pleased by the sound quality described above, and because the depression curtailed the market for large consoles, Atwater Kent and almost all the other major radio manufacturers repackaged their sets into what are now called cathedrals, tombstones and light consoles. The demands for acceptable sound were met by less powerful speakers and so a new series was introduced. One of these is shown in figure 9.

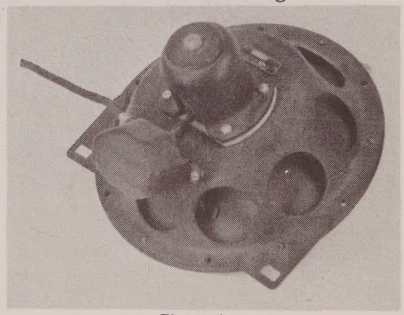


Figure 9

Like many others in its series it carries the Model number of the set for which it was made, in this case Model 99. The illustration shows the reduction in the size of the field structure. There was a similar reduction in the diameter of the voice coil. This design provided good quality at a reduced cost making it possible for many families in the thirties to have good musical range in their homes, where before they either couldn't afford an expensive set like Model 70 or couldn't expect quality music from speakers like Model E.

Atwater Kent understood very clearly the value of the advertising in bringing his line of radios to the market. His advertising staff and his agencies were effective in picturing his products in appealing terms. He sponsored classical music on the NBC national network and pushing his dealers to demonstrate the sound quality of Atwater Kent radios. To support the campaign, magazine ads and posters used the phrase "with the Golden Voice" along with the name Atwater Kent Radio. To emphasize the golden voice the loud speakers in such sets were high-lighted with gold-colored paint. One of these is shown in figure 10, where it may be seen that the speaker is all but identical to the one in figure 9 except for color.

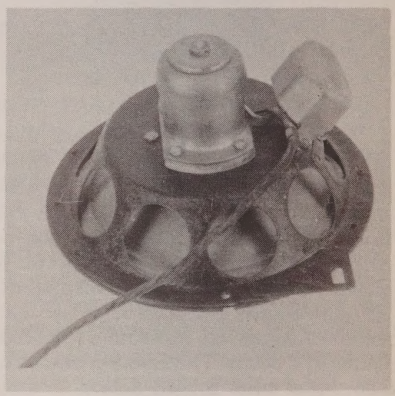


Figure 10

Some of the smaller table sets were so space limited that the regular console speakers could not be accommodated. For these an eight speaker was designed. It was similar in construction and quality to the larger units and consequently had good quality sound output. Figure 11 shows the smaller loudspeaker, with its golden field coil and output transformer.

Throughout the time period that marked the production of Atwater Kent

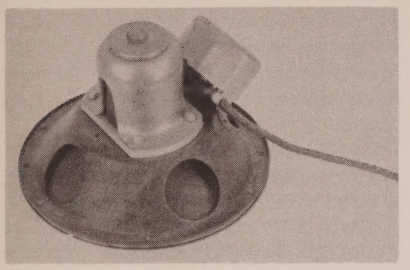


Figure 11

electric sets, the market for battery sets and radios powered from direct current lines was big enough to demand corresponding product lines. The requirement for field power to produce the magnetic field that the voice coil needed to react against was acceptably met by 32 volt and 110 volt power systems. For the battery sets another means was tried. It was actually the fore-runner of nearly all our present day permanent magnet dynamic loud speakers. Figure 12 shows the unit. Its obvious feature is the group of horse-shoe magnets that provide the magnetic field for the voice coil. From the figure it may be seen that changing the center post to an Alnico magnet and adding closure bars in place of the magnets is all that is needed to put that speaker in the next generation. But, Alas, the Atwater Kent Manufacturing Company was not present in the next generation.

Another demand for loud speakers was to provide remote locations with sound from the family radio. Extension

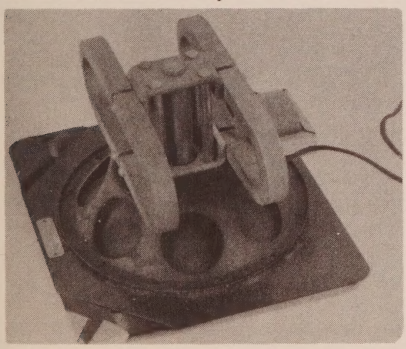


Figure 12

speakers in today's world are very similar to the main units, but trying to extend electro-dynamics was a bit difficult, particularly if the underwriter's code for voltages over 50 volts was to be met. Another way to provide extensions was to use magnetic speakers similar to the Model E. Sets in the 70 series with Q chasses, (battery sets) had been equipped with a redesigned magnetic motor (driver).

This speaker, the Model J, was given a new case and designated Model JB. It used a high impedance coil which, with isolation could be bridged across the plate circuit of the radio's output stage. The white-metal case as shown in figure 13 was styled with a faint echo of art-deco but the flowered grille-cloth modi-

Figure 13

fied the impression to give a feeling of old-fashioned decorative realism. Since few of these speakers have turned up, one can suppose that they were not very popular. After second sets came into general use in the early-middle thirties, the usefulness of extension speakers wasn't sufficient to create an attractive market.

The detailed description of all the differences in Atwater Kent speakers used with the radios he produced in the thirties is far beyond the scope of any general collector's magazine. Some of

the data may be found in the Atwater Kent Service Manuals and Parts Lists but even there about all that is available is part number identification of speakers with receiver model numbers. As more collectors find time to study their radios and as more radios turn up, the data bank will grow. For now, however, the author must say, he has learned a great deal in just combing the material together for this brief overview. Any of you who have data and want to have it incorporated in the growing record, send it along. You may be sure it will be welcome.

The Editor apologizes for the poor quality of the pictures. The reader must remember they are of the third generation.

ATWATER KENT FOUNTAIN RADIO "FOUNTANA" 1932

During radio's first thirty years, many manufacturing companies offered "custom radios", and such a company was the "Electric Radio Clock Fountain Co." of Irvington, New Jersey. Apparently the manufacturer was not too successful, as no other products of theirs have surfaced. This very unique and beautiful example, however, turned up in New Jersey in 1985. The large brass tag (almost 4" long) on the front of the base of the cabinet is engraved "Fountain Radio "Fountana" Electric Radio Clock Fountain Co., Irvington, New Jersey. The cabinet contains an Atwater Kent 90 radio chassis, and an electric "Telechron" clock. The electric fountain on the top of the cabinet in a bronze basin thirty inches in diameter has twenty eight nozzles projecting the water to a height of twenty inches, showering the Grecian female marble figure in the center of the bronze basin. Three magnifying lenses are positioned around the figure and project colored rays on the room ceiling. The colors of the rays change by virtue of a color wheel underneath the fountain, turned by a worm drive off the pump motor. Live plants originally grew in the curved copper planters around the periphery of the fountain basin. Four sets of cast metal steps are positioned evenly around the basin leading down into the water.

Restoration of the set was not difficult as far as the cabinet was concerned. The original finish was in excellent shape, so was not touched. The original grill cloth was retained, and original knobs on the radio itself did not need replacement.

Restoring the fountain was a longer task however, as all rubber tubing had hardened until solid, and all bearings on the pump and electric motor were frozen. After considerable effort though, the original motor and pump were put back in operating condition, the color wheel working, and the fountain functioned very well. All the old rubber tubing had been replaced, and after almost a year and a half of operation, no leaks have occurred.

The fountain radio has been on display here in my museum in Elgin, IL for the past year, and I want to invite everyone to come and "take a look". The museum is open only by appointment, so please contact me in advance.

Ralph Muchow

Addendum: It is the opinion of most collectors who have seen the fountain radio, that it was designed for use in a men's club or theater foyer—could also have been owned by a wealthy entertainer.

Ralph Muchow and John Drake, ARCA National Conference, 1984, Elgin, IL.